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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/610,486	06/30/2003	Eric J. Horvitz	MS303530.1 / MSFTP471US	5347

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EXAMINER	
KNOWLIN, THJUAN P	

ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 09/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/610,486	HORVITZ ET AL.	
	Examiner	Art Unit	
	Thjuan P. Knowlin	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 June 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *07/01/05 and 05/02/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

2. Misnumbered claims 12-37 have been renumbered as claims 11-36.

3. Claim 15 is objected to because of the following informalities: Claim 15 is objected to, because it is not in proper format. In line 3, there is a "." after the term "operators", and then another sentence follows, which also ends with a "." Appropriate correction is required.

Claim Rejections – 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-10, 12-26, 32-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Joseph et al (US 6,807,274).

5. In regards to claims 1, 18, and 19, Joseph discloses an automated call routing system (See Abstract and col. 2 lines 23-31) and method, comprising: an automated call routing component to route incoming calls to members (e.g., customer service representative) of an organization (e.g., call center) and providing automated response (e.g., automated dialog) to one or more callers (e.g., customer) (See Abstract and col. 2 lines 23-31); and a decision (e.g., routing decision) model associated with the automated call routing component to mitigate transferring the calls to an operator (e.g., live service representative) (See col. 2 lines 23-35).

6. In regards to claims 2 and 6, Joseph discloses the system, further comprising a speech recognition component (e.g., Interactive Voice Response (IVR) system) for communicating with the callers (See col. 2 lines 14-22).

7. In regards to claims 3, 8, and 20, Joseph discloses the system and method, the decision model is trained from a data log (e.g., database lookup) that has recorded data (e.g., statistical data) of past activities and interactions with the call routing component (See col. 3-4 lines 66-6 and col. 4 lines 8-16).

8. In regards to claim 4, Joseph discloses the system, the data log contains data relating to at least one of a Speaker Found, a Speaker Not Found, an OperatorRequest, a Help Request, a Hang Up, a Maximum number of Errors, a Not Ready indication, and an Undefined category (See col. 3 lines 28-35 and col. 3-4 lines 66-6).

9. In regards to claim 5, Joseph discloses the system, the decision model processes one or more dialog features including at least one of system and user actions, session summary feature, n-best recognitions features, and generalized temporal features (See Abstract and col. 2 lines 14-22).

10. In regards to claim 7, Joseph discloses the system, the decision model employs a probability tree determining a likelihood of success given a sequence of system actions (See col. 2-3 lines 63-5 and col. 3 lines 39-46).

11. In regards to claims 9 and 10, Joseph discloses the system, decision model employs a dependency network that processes one or more categories of dialog (e.g., questions/queries) features as input variables (See col. 2-3 lines 44-5).

12. In regards to claim 12, Joseph discloses the system, further comprising a component to increase an amount of data in order to boost a partial model for dialog turns over a marginal model (See col. 2 lines 23-31 and col. 3-4 lines 66-16).

13. In regards to claims 13, 24, 32, and 33, Joseph discloses the system and method, the decision model includes probabilistic models to perform dynamic decisions about costs and benefits of shifting a caller to human operator (See col. 1 lines 45-53).

14. In regards to claims 14 and 35, Joseph discloses the system and method, the probabilistic models provide predictions about outcomes to enable administrators of automated call routing systems to specify preferences regarding the transfer of callers to a human operator (See col. 3-4 lines 66-16).

15. In regards to claims 15, 16, 21, and 34, Joseph discloses the system and method, the preferences are represented as a tolerated threshold on failure as a

function of a current expected time that callers have to wait for a human operator, given a current load on operators, the probabilistic models can also be employed in call center design (See col. 3 lines 14-27 and col. 3 lines 39-57).

16. In regards to claims 17 and 25, Joseph discloses the system and method, the queue is optimized based on queue-theoretic formulation (See col. 4 lines 9-16).

17. In regards to claims 22, 23, and 26, Joseph discloses the method, further comprising processing user frustrations (See col. 1 lines 55-61).

18. In regards to claim 36, Joseph discloses the method, supporting an application including at least one of touch-tone and speech recognition (See col. 2 lines 20-22).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. Claims 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joseph et al (US 6,807,274).

20. In regards to claims 27-31, Joseph discloses all of claims 27-31 limitations, except the specific formulas recited in claims 27-31. Joseph, however, does disclose formulas (See col. 4 lines 8-16 and col. 4 lines 35-58) that produce the same results that the present invention is attempting to obtain, in claims 27-31. Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to

incorporate the use of these formulas within the system, as a way of calculating the "wait" time that a call is expected to be held in queue before being answered by a customer service representative.

21. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joseph et al (US 6,807, 274), in view of Chittineni (US 4,747,054).

22. In regards to claim 11, Joseph discloses all of claim 11 limitations, except the system, the decision model employs a Markov Dependency network. Chittineni, however, does disclose the use of a Markov Dependency network (See col. 16 lines 16-25). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate this decision model within the system, as a way of modeling dependencies of errors of equations, such as the equations/formulas used to calculate the "wait" time that a call is expected to be held in queue before being answered by a customer service representative.

Conclusion

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Joseph et al (US Patent Application Publication, Pub. No.: US 2005/0041796 A1) teach call routing from manual to automated dialog of interactive voice response system. Joseph et al (US Patent Application Publication, Pub. No.: US 2004/0005047 A1) teach call routing from manual to automated dialog of interactive

voice response system. Shaffer et al (US 5,848,131) teach an automatic information and routing system for telephonic services.

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thjuan P. Knowlin whose telephone number is (571) 272-7486. The examiner can normally be reached on Mon-Fri 8:30-5:00pm.

25. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on (571) 272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

26. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Thjuan P. Knowlin